USER INSTRUCTIONS

WALL HUNG RSF GAS FIRED CONDENSING COMBINATION BOILER

GREENSTAR 24i Junior/28i Junior

FOR SEALED CENTRAL HEATING SYSTEMS AND MAINS FED DOMESTIC HOT WATER

6720643356-00.1Wo

The appliance is for use with Natural Gas or L.P.G. (Cat II 2H3P type C13, C33 & C53)		
	Model	GC Number
Natural Gas	24i Junior	47-406-54
	28i Junior	47-406-56
Liquid Petroleum Gas	24i Junior	47-406-55
	28i Junior	47-406-57

UK/IE

benchmark COLLECTIVE MARK
THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

WORCESTER
Bosch Group

6 720 802 048 (2013/05)

PREFACE

PLEASE READ THESE INSTRUCTIONS CAREFULLY

These instructions are applicable to the Worcester, Bosch Group boiler model stated on the front cover only.

These instructions apply in the UK/IE only and must be followed except for any statutory obligation.

After installation please leave this User instruction Manual, Installation, Commissioning and Servicing Instructions and completed Benchmark Checklist with the user.

DEDICATED TO HEATING COMFORT

Thank you for purchasing a Greenstar gas-fired condensing combination boiler manufactured by Worcester, Bosch Group. The company prides itself on manufacturing boilers to the strictest quality control standards throughout every stage of production.

Worcester, Bosch group has led the field in innovative boiler design and performance for over 50 years. This heritage means all our products are of exceptional quality and proven reliability.

The Greenstar range in particular is extremely energy efficient, offering you economical running costs and value for money. It sits in SEDBUK 2005 Band A and SEDBUK 2009 efficiency rating of 89.1%, It is therefore amongst the top energy rated boilers available.

There is also the reassurance of our no-nonsense 2 years parts and labour guarantee - backed up by Worcester Total Cover, an optional complete maintenance scheme to keep your boiler operating at peak condition and efficiency.

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1 SYMBOLS AND SAFETY PRECAUTIONS

1.1 EXPLANATION OF SYMBOLS

WARNING SYMBOLS

Safety instructions in this document are framed and identified by a warning triangle which is printed on a grey background.

Signal words indicate the seriousness of the hazard in terms of the consequences of not following the safety instructions.

- **NOTICE** indicates possible damage to property or equipment, but where there is no risk of personal injury.
- **CAUTION** indicates possible personal injury.
- **WARNING** indicates possible severe personal injury.
- **DANGER** indicates possible risk to life.

IMPORTANT INFORMATION

Notes contain important information in cases where there is no risk of personal injury or material losses and are identified by the symbol shown on the left. They are bordered by horizontal lines above and below the text.

ADDITIONAL SYMBOLS

Symbol	Meaning
▶	a step in an action sequence
→	a reference to a related part in the document or to other related documents
•	a list entry
–	a list entry (second level)

Table 1 Symbols

1.2 SAFETY PRECAUTIONS

IF YOU SMELL GAS!

A gas leak could potentially cause an explosion. If you smell gas, observe the following rules.

- ▶ Prevent flames or sparks:
  - – Do not smoke, use a lighter or strike matches.
  - – Do not operate any electrical switches or unplug any equipment.
  - – Do not use the telephone or ring doorbells.
- ▶ Turn off the gas at the meter or regulator.
- ▶ Open windows and doors.
- ▶ Warn your neighbours and leave the building.
- ▶ Prevent anyone from entering the building.
- ▶ Well away from the building: call the National Gas Emergency Service on 0800 111 999.
- ▶ L.P.G. boilers: Call the supplier's number on the side of the gas tank.

BOILER OPERATION:

This boiler must only be operated by a responsible adult who has been instructed in, understands and is aware of the boiler's operating conditions and effects.

COMBUSTIBLE AND CORROSIVE MATERIALS:

Chemically aggressive substances can corrode the boiler and invalidate any warranty.

- ▶ Do not store or use any combustible materials (paper, thinners, paints etc.) inside or within the vicinity of the boiler.

FITTINGS AND MODIFICATIONS:

Only a competent engineer in accordance with the Gas Safety (Installation and Use) Regulations can remove the outer case and carry out any work.

- ▶ Do not remove the outer casing.

Any misuse or unauthorised modifications to the boiler, flue or associated components and system will invalidate the warranty.

- ▶ Do not modify the boiler or flue system in any way.

Worcester, Bosch Group accepts no liability arising from any such actions. This does not affect your statutory rights.

2 GENERAL INFORMATION

SERVICING

Ensure that the service engineer completes the Service Record in the Benchmark Checklist after each service. The Benchmark Checklist and service interval record can be found at the rear of the Installation, Commissioning and Servicing Instructions.

- The boiler must be serviced regularly by a competent, qualified person, such as a Worcester service engineer or other Gas Safe registered engineer.
- Always use original spares, to help maintain the economy, safety and reliability of the boiler and have the Service Record completed in the Benchmark Checklist.

The completed Benchmark Checklist will be required in the event of any warranty work and may be required by the local Building Control Inspector.

BENCHMARK STANDARD

benchmark
COLLECTIVE MARK
THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

The Benchmark initiative is a code of practice to encourage the correct installation, commissioning and servicing of domestic central heating boilers and system equipment.

A “log book” is dispatched with every boiler. This is a vital document that needs to be completed by the installer at the time of installation. It confirms that the boiler has been installed and commissioned according to the manufacturers instructions.

The log book provides space for the recording of regular servicing of the boiler/system and this can become a valuable document when, for example, the householder wishes to sell the property. The log book will show a potential purchaser that the heating system has received regular professional attention during its lifetime.

The Benchmark initiative aims to:

- Raise standards among professional installers
- Build and maintain high safety standards in the industry
- Improve customer satisfaction levels
- Make a contribution to the nation's commitment to “Climate Change”

3 CONTROLS

▶ To gain access to the boiler controls push the top centre of the flap and release.

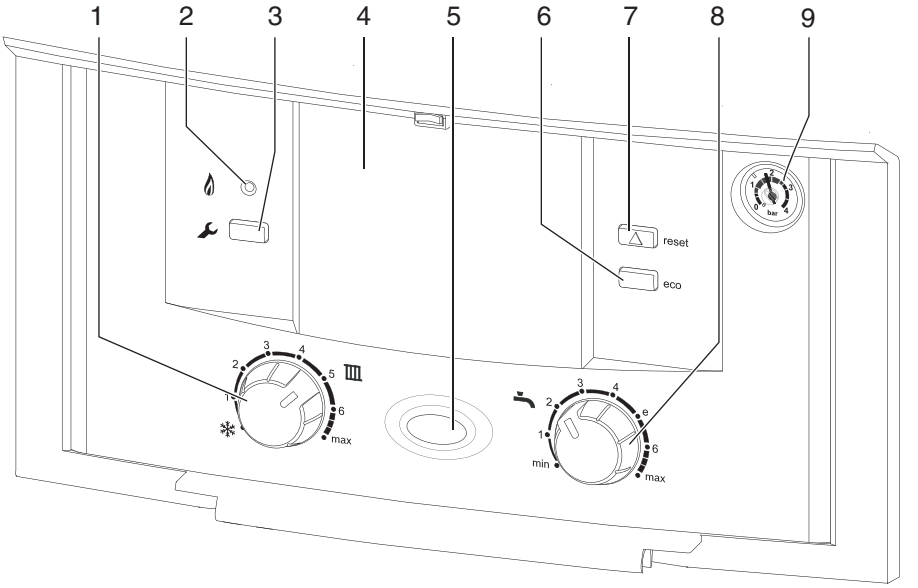


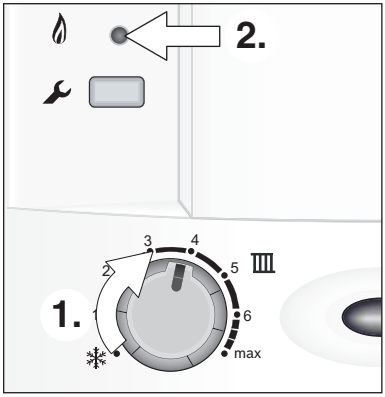
Fig. 1 Control panel fascia

Boiler Controls	1	Central heating temperature control	6	ECO button
	2	Burner indicator (Green)	7	Reset button
	3	Service button	8	Hot water temperature control
	4	Cover or optional Programmer	9	System pressure gauge
	5	Power ON and fault indicator (Blue)		

3.1 OPERATING THE BOILER

3.1.1 SETTING THE CENTRAL HEATING TEMPERATURE

1. Turn the central heating temperature control knob to the desired level.
   Temperatures given in the figure below are approximate.
2. The Burner indicator (green) will illuminate to show that the boiler is running.



Min	---	40 °C
1	---	47 °C
2	---	53 °C
3	---	61 °C
4	---	68 °C
5	---	74 °C
6	---	80 °C
Max	---	82 °C

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Fig. 2 Central heating temperature control

3.1.2 SWITCH OFF THE CENTRAL HEATING

1. Turn the temperature control knob to the snowflake symbol to switch off the central heating.

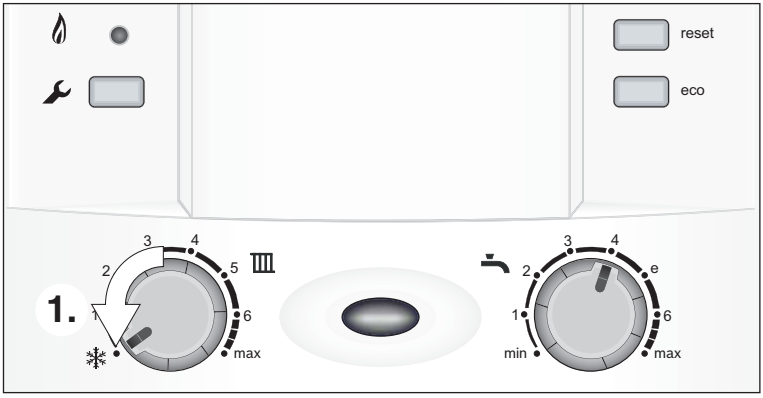

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Fig. 3 Switch off central heating

3.1.3 BOILER FROST PROTECTION

If the temperature within the boiler falls below 8°C the pump will run to circulate water and prevent the system freezing.If the temperature within the boiler falls below 5°C the boiler will fire periodically, bringing the boiler temperature up to 12°C to avoid the possibility of the system freezing.This process will be repeated until such time that the boiler temperature does not drop below 5°C.

3.1.4 SETTING THE HOT WATER TEMPERATURE

1. Turn the hot water temperature control knob to the desired level.

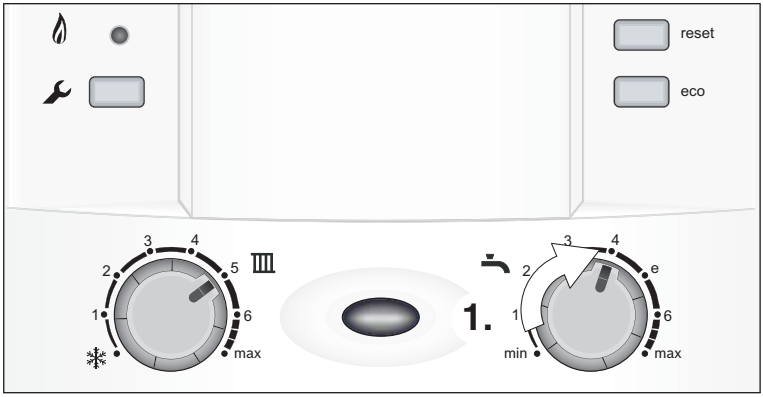

Fig. 4 Hot water temperature

3.1.5 DOMESTIC HOT WATER PRE-HEAT

The hot water heat exchanger is kept “pre-heated” to reduce the time taken to deliver hot water at the tap. Pre-heat is enabled by default, during the initial boiler start up and the ECO button is not illuminated.

Eco mode is an energy saving function allowing hot water to be heated only as and when required, by running a hot tap, this OFF by default.

1. Press and hold the Eco button for at least four seconds to enter the energy saving Eco mode, when Eco mode is active the Eco button will be illuminated.

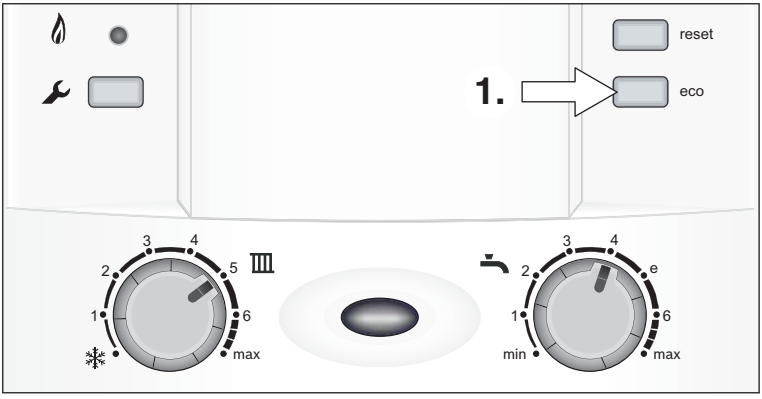

Fig. 5 Eco mode

3.1.6 BOILER RESET

In the event of a fault, the reset button will flash once per second and the blue mains indicator light will flash.

1. To reset the boiler press the reset button for approximately five seconds.
   When the boiler resets the reset button will no longer be illuminated.
2. The mains indicator will no longer be flashing.

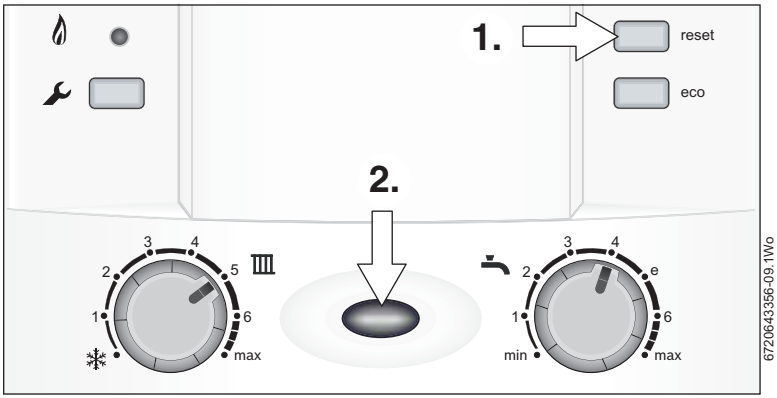

Fig. 6 Reset button and mains light

If the fault remains and cannot be cleared by pressing the reset button, contact Worcester, Bosch Group for assistance.

4 SYSTEM PRESSURE

4.1 SEALED HEATING SYSTEMS

This boiler is fitted to a sealed heating system which is pre-pressurised. Your installer will advise you of the minimum and maximum pressure indicated on the pressure gauge.

- ▶ Check regularly that the pressure is maintained.
- ▶ If the pressure gauge reads less than 1 bar then the system requires re-charging.
- ▶ Contact your installer or maintenance engineer if a permanent significant decrease or increase in pressure is indicated on the pressure gauge.

The filling method will be one of three types:

- Optional “Keyless”integral filling link
- Optional “Keyed” integral filling link
- An external filling loop, fitted valves and flexible hose.

4.2 LOCATING THE INTEGRAL FILLING LINK

To remove bottom panel:

1. Push the panel back fully to release the front edge
2. Pull forward and down to remove

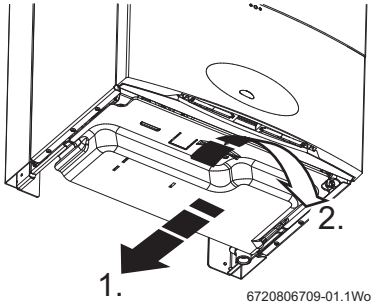

Fig. 7 Remove the bottom panel

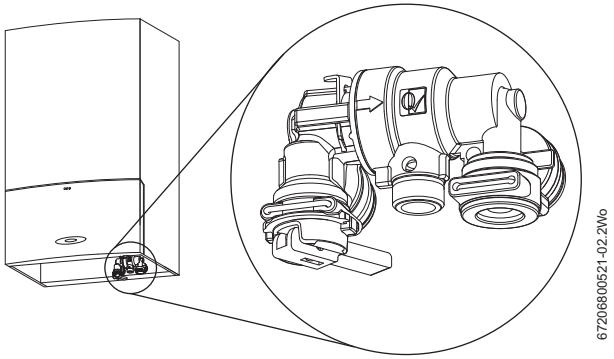

Fig. 8 Integral filling link location

4.3 OPTIONAL INTEGRAL KEYLESS FILLING LINK

Locate filling link and follow instructions for re-pressurising.

1. If the needle on the appliance pressure gauge reads less than 1 bar, re-charge the system.
2. Pull the blue lever down to start the filling process.
3. Monitor the pressure gauge on the boiler fascia.

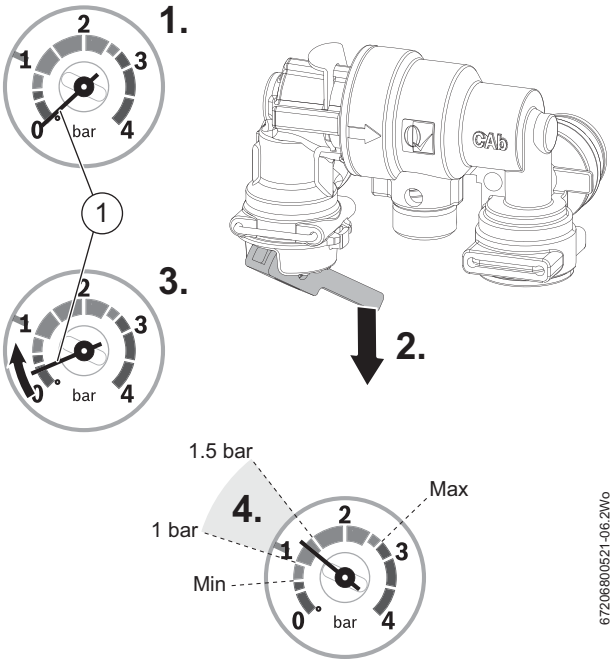

Fig. 9 Keyless filling link

4. When the needle reaches between 1 to 1.5 bar on the gauge, release the blue lever to stop the filling process.

4.4 OPTIONAL INTEGRAL KEYED FILLING LINK

Locate filling key and follow instructions for re-pressurising.

1. Push the filling key firmly into the body of the filling link, ensuring the arrow on the key shaft lines up with the open padlock symbol.
2. Turn the filling key to the right, to the stop, so the arrow now lines up with the closed padlock symbol. This bridges the gap between the two sections of the filling loop.
3. Turn the white knob to the left, this will allow water to fill the system.
4. When the pressure, shown on the boiler fascia pressure gauge, reaches between the 1 and 1.5 bar marks (zone A), turn the white knob to the right to close the valve. Do not overtighten.
5. Turn the filling key to the left, to the stop, so that the arrow lines up with the open padlock symbol and pull the key straight down to remove. Please remember to store the key in the bottom panel.

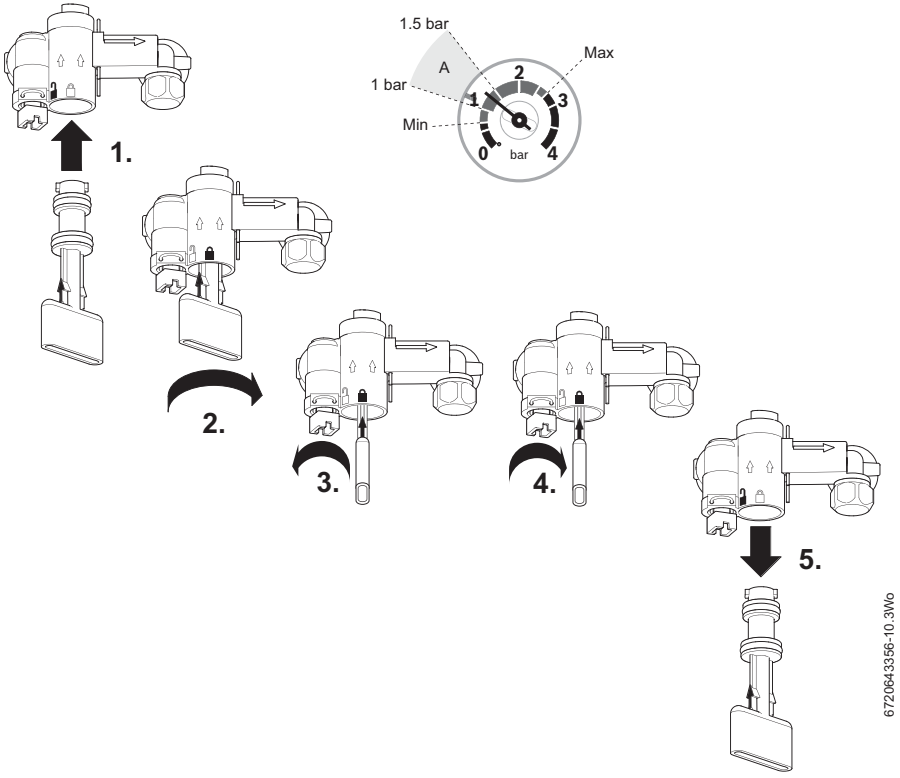

Fig. 10 Keyed filling link

4.5 EXTERNAL FILLING LOOP

Once the external filling loop has been located, follow the instructions for re-pressurising the system.

1. Unscrew blanking cap.
2. Attach the hose to the valves, screw on hand-tight.
3. Turn the handle/screwdriver slot through 90° to open the valves.
4. The handle/screwdriver slot will be in-line with the valves

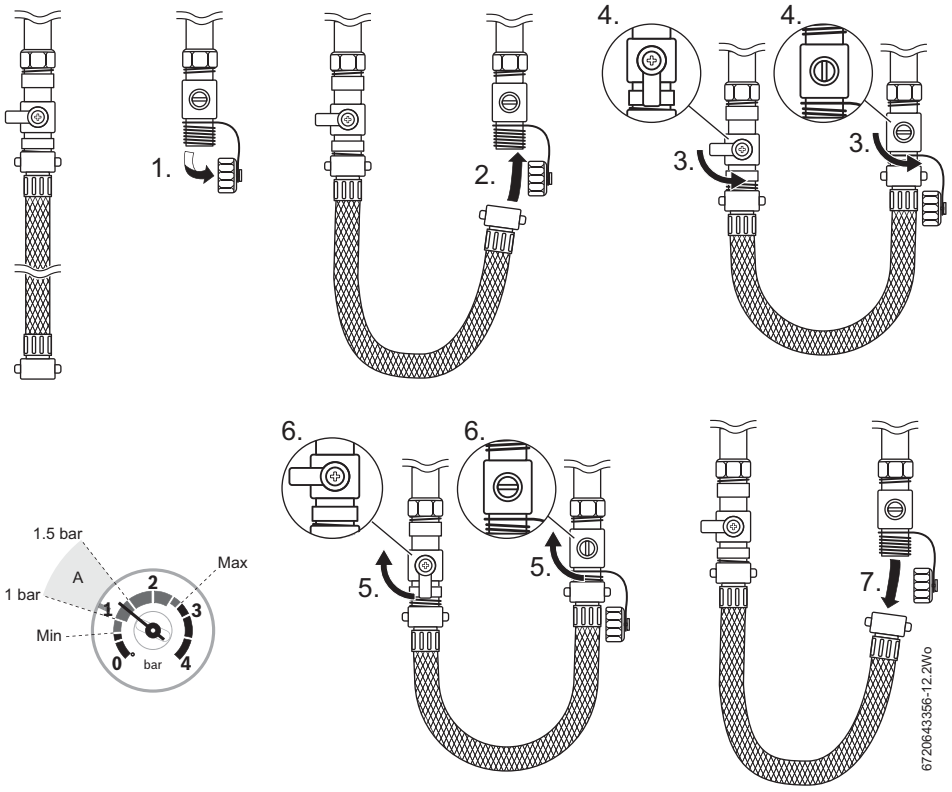

Fig. 11 External filling loop

5. When the pressure reaches between the 1 and 1.5 bar marks (zone A), turn the handle/screwdriver slot back, through 90°, to close the valve.
6. The handle/screwdriver slot will be at 90° to the valves
7. Remove the hose and replace the blanking caps.

5 SERVICE CLEARANCES

Your installer will have provided adequate space around the boiler for safety and servicing access.

CAUTION: Restricted space.
The boiler may overheat.
► Do not restrict this space with the addition of cupboards, shelves etc. next to the boiler.

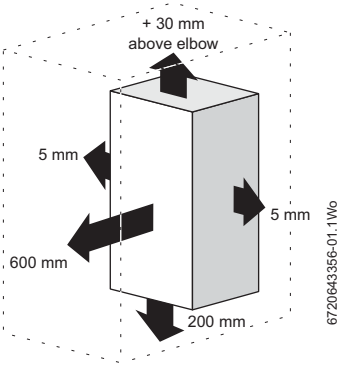

Fig. 12 Service clearances

6 MAINTAINING YOUR BOILER

Your new gas-fired boiler represents a long term investment in a reliable, high quality product.

In order to realise its maximum working life, and to ensure it continues to operate at peak efficiency and performance, it is essential that your boiler receives regular servicing and maintenance checks from a competent person beyond the initial 2 year guarantee period.

If you would like to know more about a Worcester, Bosch Group service contract, please tick the appropriate box on your warranty registration card.

If your gas-fired boiler should fail to operate correctly or requires servicing please contact Worcester, Bosch Group Appointments Team (see rear cover for details).

Details of the boiler including the Gas Council number can be found under the controls covers flap on the boiler.

The Gas Council number is also listed on the front cover of your Installation, Commissioning and Servicing Instructions.

7 FAULT FINDING

If a boiler fault occurs, please read the following page thoroughly before contacting Worcester, Bosch Group.

Problem	Cause	Remedy
Desired room temperature is not reached	Thermostatic radiator valve(s) set too low	▶ Increase thermostatic radiator valve setting(s)
	Temperature control for central heating flow on boiler set too low	▶ Increase central heating flow temperature control setting
	Air trapped in heating system	▶ Bleed radiators and recharge heating system
Desired room temperature exceeded by large amount	Radiators are too hot	▶ Turn down thermostatic radiator valves/room thermostat ▶ Reduce central heating temperature by turning down the Central Heating control on boiler
Heating stays on for too long	Clock is incorrectly set	▶ Check setting and adjust
No ON/OFF mains indicator	Momentary power failure	▶ Switch off boiler at master switch, wait a few seconds then switch on again
Hot water temperature too low	Temperature set too low	▶ Check setting and adjust
	Water flow at tap too high	▶ Reduce flow rate at tap
Hot water temperature too high	Temperature set too high	▶ Check setting and adjust
	Water flow at tap too low	▶ Increase flow rate at tap

EXTREME COLD WEATHER

In instances where the condensate pipe work is run external or in an unheated area, such as a garage, it can be at risk of freezing, even if insulated.

A frozen condensate pipe will cause the boiler to shut down, and display a flashing Reset light on the control panel.

WARNING: Falling hazard!

Failure to follow this guidance can result in personal injury.

- ▶ Only attempt to thaw a condense pipe that is at ground level, which is easily accessible.
- ▶ Never attempt to thaw a condense pipe which is at height.

CAUTION: Pipe damage

- ▶ **DO NOT** use boiling water to thaw the condensate pipe!

If the condensate pipe has frozen:

- ▶ Locate the blockage.
  It is likely that the pipe is frozen at the most exposed point external to the building or where there is some obstruction to flow. This could be the open end of the pipe, at a bend or elbow, or where there is a dip in the pipe in which condensate can collect. The location of the blockage should be identified as closely as possible before taking further action.
- ▶ Thaw the frozen pipe.
  The pipe can be thawed by applying a hot water bottle, a microwaveable heating pack (the sort used for muscular aches and pains) or a cloth soaked in hot water to the exterior of the pipe, close to the point of blockage. Hot water can also be poured onto the pipe from a watering can or similar container.
- ▶ Once the pipe has been thawed the boiler must be reset, press the reset button for five seconds and wait two to three minutes for the boiler to restart.
- ▶ If the boiler does not restart, contact Worcester's Technical Support Team (0844 892 3366) for assistance.
- ▶ Contact your installer in order to find a permanent solution to the problem.

8 FAULT OR BREAKDOWN

This boiler is supported in the UK and Eire by Worcester, Bosch Group.

Specialist Service Engineers are available to attend a breakdown occurring on this boiler.

Invoices for attendance and repair work carried out on this boiler by any third party will not be accepted.

- No charge will be made for parts and/or labour providing:
  A boiler fault is found and the appliance has been installed within the past 24 months. Reasonable evidence of this must be supplied on request. i.e. the Benchmark Checklist.
- A call-out charge will be made where:
  - The boiler has been installed for over 24 months.
  - Evidence cannot be provided that the first year service inspection has been carried out (i.e. an entry in the Benchmark Checklist).
  - Our Field Service Engineer finds no fault with the boiler.
  - The cause of breakdown is misuse or with other parts of your plumbing/heating system, or with equipment not supplied by Worcester, Bosch Group.

TECHNICAL SUPPORT

No boiler fault is found on over 30% of all service calls.
In the case of a suspected fault, refer to the fault finding section of this guide.

In the event of a boiler fault or breakdown please contact Worcester, Bosch Group appointments team on 0844 892 3000. Your advisor will arrange for an engineer to call with the minimum of delay; under normal circumstances this will be from 1 - 3 working days (excluding weekends) for priority breakdown situations (no hot water and/or heating).

9 TIPS ON ENERGY SAVING

HEATING ECONOMICALLY

The boiler provides a high level of comfort whilst keeping gas consumption and the environment effects as low as possible.

The gas supply to the burner is controlled according to the level of demand for heat. The boiler operates with a low flame if the demand for heat reduces. The technical term for this process is modulating control.

Modulating control reduces temperature fluctuations and provides an even distribution of heat throughout the home. This means that the boiler may stay on for relatively long periods of time but will use less gas than a boiler that continually switches on and off.

CENTRAL HEATING SYSTEMS WITH ROOM THERMOSTAT/THERMOSTATIC RADIATOR VALVES

With modern heating systems set around a 20 °C heat loss, the optimum setting for a condensing boiler will be approximately between one and two on the central heating temperature control. The system must be balanced correctly and the radiators may need upgrading. This allows the boiler to condense as much as possible for the central heating system.

The temperature of each room can be set individually (except primary room with the room thermostat) using the thermostatic radiator valves.

ROOM THERMOSTATS

Reducing the setting of the room thermostat by 1 °C can reduce fuel consumption by up to 10%.

NEW CONTROL SYSTEMS

Upgrade your heating control system if necessary with the latest equipment available. The minimum level of control is a programmer, interlocking room thermostat and thermostatic radiator valves.

ROOF INSULATION

Around 30% of the heat loss from a property is through the roof. Replace any old insulation with new insulation, preferably of around 200 mm thickness or more.

WINDOW FRAMES

Single glazed windows, particularly those with steel frames, can lose a great deal of heat. Consideration should be given to replacement with PVCu or wooden framed double glazed units.

RADIATORS

If a radiator is sited underneath a window, its performance will be affected if the curtains are allowed to drape over the radiator. Shelves fitted above or in front of the radiator should also be avoided.

It is advisable to manually adjust all thermostatic radiator valves every 2 - 3 months to prevent them sticking. Ensure radiator valves are correctly set and not damaged.

DRAUGHTS

Try to ensure that draughts around doors, windows, letter boxes and keyholes etc. are reduced by using a suitable draught excluder.

WARNING: AIR VENTS

- Do not block or seal any air vents that are installed to ensure that the central heating boiler operates safely.

CURTAINS

Lined curtains, or heavier full length curtains can provide excellent insulation. However, always ensure that the curtains do not drape over radiators.

10 YOUR GUARANTEE

This boiler is guaranteed against faulty materials or workmanship for a period of 2 years from the date of installation subject to the following terms and conditions.

- During the period of this guarantee any components of the boiler which are proven to be faulty or defective in manufacture will be exchanged or repaired free of charge by Bosch Thermotechnology Ltd.
- The householder may be asked to prove the date of installation, that the boiler was correctly commissioned and, where appropriate, the first year's service has been carried out to the satisfaction of Bosch Thermotechnology Ltd., when requested. These should be part of the Benchmark Checklist.
- The boiler has been used only for the normal domestic purposes for which it was designed.

This guarantee does not affect your statutory rights.

GUARANTEE REGISTRATION

Returning the card will register you as the owner of your new gas boiler and will assist us in maintaining an effective and efficient customer service by establishing a reference and permanent record for your boiler.

FOR YOUR OWN RECORD:

Please ensure that the Benchmark Checklist has been completed by your installer or service engineer.

Model	
Serial No.[1)]	
Type/size	
Date of installation	
Name of Installer	
Telephone number of Installer	

1) See identity label on control panel/flap or Benchmark Checklist.

11 ENVIRONMENT / DISPOSAL

Environmental protection is a fundamental corporate strategy of the Bosch Group.
The quality of our products, their economy and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed.
We use the best possible technology and materials for protecting the environment taking account of economic considerations.

PACKAGING

We participate in the recycling programmes of the countries in which our products are sold to ensure optimum recycling.
All of our packaging materials are environmentally compatible and can be recycled.

USED APPLIANCES

▶ All Greenstar gas boilers are 100% recycleable.
The various assemblies can be easily dismantled and synthetic materials are marked accordingly. Assemblies can therefore be sorted by composition and passed on for recycling.

12 GLOSSARY

Central heating systems

All radiators must be heated at an even rate. If the top of a radiator is at a lower temperature than the bottom then it should be vented by releasing air through the venting screw at the top of the radiator. Ask your installer to show you how this is done.

This boiler is fitted to a sealed system. Should water leaks be found or if excessive venting is required, then a service engineer must be contacted to inspect the installation and rectify any fault.

Only additives that are compatible with aluminium may be used in the system. Any incompatible additive used will invalidate the guarantee.

Pluming and Condensate drain

This is a condensing boiler and the flue terminal will, at times give out a plume of water vapour. This is quite normal.

The boiler produces condensate which is discharged regularly by a syphon within the boiler via a plastic pipe to a drain. This pipe must not be blocked or altered in any way.

Room thermostat / programmer

A room thermostat / programmer must be fitted to control the central heating. This controls the times and temperatures of the central heating, preventing the boiler from firing unnecessarily. Refer to the instructions supplied with the thermostat and programmer for further information.

Thermostatic radiator valves

Thermostatic radiator valves must be fitted in sleeping accommodation. It is recommended that this type of valve is fitted to all but one of the radiators. The remaining radiator, where the room thermostat is located, must be uncontrolled and left open.

Pump over run function

After the boiler has finished a demand for central heating or hot water, the pump continues to run for three minutes to dissipate the heat from within the boiler.

Pump anti-seizure

If there has been no heating demand for 24 hours the boiler will run the system pump for a few seconds to reduce the possibility of pump seizure during long periods of inactivity.

SEDBUK

Seasonal Efficiency of Domestic Boilers in the UK.

WORCESTER, BOSCH GROUP:

TECHNICAL SUPPORT:	0844 892 3366
APPOINTMENTS:	0844 892 3000
SPARES:	01905 752571
LITERATURE:	0844 892 9800
TRAINING:	01905 752526
SALES:	01905 752640

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Worcester, Bosch Group is a brand name of
Bosch Thermotechnology Ltd.

worcester-bosch.co.uk

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